

92
cont.

plurality of trench gates 26 are disposed parallel to one another and extend from an obverse surface, which in FIGURE 1 is the top surface, of a semiconductor substrate through the body 24 to the epitaxial layer 22. Formed on opposite sides of each trench gate 26 are emitter regions that are N^+ -type semiconductor regions contacting the trench gate 26 via a gate-insulating film 27, such as a silicon oxide film or the like. In this embodiment, the emitter regions are formed by trench-emitter regions 28 (a first semiconductor region) and emitter-connecting regions 30 (a second semiconductor region). The emitter-connecting regions 30 connect trench-emitter regions 28 that face each other so as to form a ladder-shaped configuration. The power semiconductor device 20 further has contact P regions 32 that are P^+ -type semiconductor regions formed between the emitter-connecting regions 30 on the body 24. The power semiconductor device 20 may be a power MOSFET (where the substrate 21 is of N-type), an insulated gate bipolar transistor (IGBT, where the substrate 21 is of P-type) which is a generally-termed vertical-type device wherein a main current flows in a vertical direction with respect to the substrate, or a composite device that partially has a construction of a device mentioned above. FIGURES 1 and 2 show design pattern for the power semiconductor device 20. The contact P region 32 and the trench-emitter regions 28 can be formed by thermal diffusion. Therefore, in a practical manner, a part of the contact P region 32 and a part of the trench-emitter regions 28 may overlap each other.

Please see the attached Appendix for the changes made to effect the above paragraphs.

IN THE CLAIMS:

✓ Please cancel claims 2 and 14 without prejudice or disclaimer and amend claims 1, 3, 4, 6, 10, 13, 15, and 16 as follows:

- 93
Sub 1
1. (Amended) A semiconductor device comprising:
 - a body region of a first conductivity type formed in a semiconductor substrate and having a major surface opposite to the surface shared between the semiconductor substrate and the body region;
 - a plurality of trench gates extending through the body region;
 - a plurality of first semiconductor regions of a second conductivity type that is different from the first conductivity type, the first semiconductor regions having a first depth as measured from said major surface of the body region, at least a portion of the first